NRC FORM 618 (8-2000) 10 CFR 71	U.S. NUCLEAR REGULATORY COMMISSION

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
9284	4	71-9284	USA/9284/B(U)F-85	1 OF	4

2. PREAMBLE

a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."

b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

a. ISSUED TO *(Name and Address)*

Columbiana Hi Tech, LLC
1802 Fairfax Road
Greensboro, NC 27407

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Eco-Pak Specialty Packaging application dated June 19, 1998, as supplemented.

4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5.

(a) Packaging

(1) Model No.: ESP-30X Protective Shipping Package for 30-inch UF_6 Cylinders

(2) Description

An overpack for the transport of 30-inch enriched uranium hexafluoride (UF_6) cylinders. The shape of the overpack is a right circular cylinder constructed of two 11 gauge carbon steel shells. The area between the shells is filled with fire retardant, phenolic foam per ESP specification ESP-PF-1. The volume between the 1/2" inch thick end plates of the two shells is also filled with phenolic foam. A stepped horizontal joint permits the top half of the overpack to be removed from the base. The horizontal joint of each half of the overpack is covered with steel and a 5/8" thick silicone gasket seals the joint. The overpack halves are secured with ten 3/4" diameter steel bolts and nuts.

The approximate dimensions and weights of the package are as follows:

Outer shell inside diameter	43"
Outer shell length	96"
Inner shell inside diameter	30 7/8"
Inner shell length	82 5/8"
Overpack weight	2,955 pounds
30B Cylinder weight	1,390 pounds
UF_6 maximum load	5,020 pounds
Maximum package gross weight (including contents)	9,365 pounds

(3) Drawings

The packaging is constructed and assembled in accordance with ESP Drawing Nos.:

30X-1 SAR, Rev. 2, Sheets 1-4

5.(b) Contents

(1) Type and form of material

The UF_6 must be packaged in Model 30B UF_6 cylinders which have been fabricated, inspected, tested and maintained in accordance with the requirements of ANSI N14.1. The UF_6, which may contain either virgin or recycled uranium, must not contain more than the following maximum quantities of radionuclides and impurities:

U^{232}	5.0E-09 g/gU
U^{234}	2.0E-03 g/gU
U^{235}	5.0E-02 g/gU
U^{236}	2.5E-02 g/gU
U^{238}	balance of total uranium content
Pu and Np	Alpha activity not exceed 3.3 Bq/gU
Tc^{99}	5.0E-06 g/gU
Th^{228}	1.17E-09 g/gU

Fission Products 4.4 X 10^5 Mev Bq/d kgU (total contribution from gamma emitting fission products); this results in the following individual maximum activities:

Ru^{106}/Rh^{106}	2095 Bq/gU
Ru^{103}/Rh^{103}	885 Bq/gU
$Ce^{144}/Pr^{144}/Pr^{144}$	8349 Bq/gU
Sb^{125}	1030 Bq/gU
Cs^{134}	283 Bq/gU
Cs^{137}/Ba^{137}	778 Bq/gU
Zr^{95}	598 Bq/gU
Nb^{95}	574 Bq/gU

The total concentration of elements that form non-volatile fluorides (including Al, Ba, Bi, Cd, Co, Cr, Cu, Fe, Pb, Li, Mg, Mn, Ni, K, Ag, Na, Sr, Th, Sn, Zn, and Zr) must not exceed 3.0E-03 g/gU.

The contents of other elements must not exceed the following concentrations in g/gU.

Sb<1	As<3	B<1	Bi<5	Cl<100
Cr<10	Nb<1	P<50	Ru<1	Si<100
Ta<1	Ti<1	Mo<1.4	W<1.4	V<1.4

Additionally, for reprocessed UF_6, the maximum total activity present in the package is limited to 957 mixture A_2 values.

(2) Maximum quantity of material per package

The package contents are limited to a maximum of 5,020 pounds of UF_6 enriched to not more than 5 wt%U^{235}. The maximum H/U atomic ratio for the UF_6 is 0.088.

5. (c) Criticality Safety Index 5.0

6. In addition to the requirements of Subpart G of 10 CFR Part 71:

(2) The package shall be prepared for shipment and operated in accordance with the Operating Procedures in Chapter 7 of the application.

(3) The package must meet the Acceptance Tests and Maintenance Program of Chapter 8 of the application.

7. The 30-inch diameter UF_6 cylinder must be fabricated, inspected, tested and maintained in accordance with American National Standard N14.1-1995 or an earlier version of ANSI N14.1 in effect at the time of fabrication. Cylinders must be fabricated in accordance with Section VIII, Division I, of the ASME (American Society of Mechanical Engineers) Boiler and Pressure Vessel Code and be ASME Code stamped.

8. The 30-inch diameter UF_6 cylinder valve stem and plug may be tinned with ASTM B32, alloy 50A or Sn50 solder material, or a mixture of alloy 50A or Sn50 with alloy 40A or Sn40A material, provided the mixture has a minimum tin content of 45 percent.

9. The leak tightness of the 30B UF_6 cylinder shall be verified using a test having a sensitivity of at least 1 x 10^{-3} std-cc/sec per ANSI Standard N14.5-1997 prior to loading into the ESP-30X overpack.

10. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.

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11. Expiration date: May 31, 2010.

REFERENCES

ESP application dated June 19, 1998.

Supplements dated: August 27, 1999; March 22, May 12, and May 18, 2000; April 11, 2002; January 28, and April 12, 2005.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Robert J. Lewis, Chief
Licensing Section
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Date 20 April 2005

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION REPORT

Docket No. 71-9284
Model No. ESP-30X Protective Shipping Package for 30-inch UF_6 Cylinders (ESP-30X)
Certificate of Compliance No. 9284
Revision No. 4

SUMMARY

By application dated April 12, 2005, Columbiana Hi Tech, LLC, requested renewal of Certificate of Compliance No. 9284, for the Model No. ESP-30X package. Columbiana Hi Tech, LLC, did not request any changes to the package design or authorized contents. The certificate has been renewed for a five year term.

EVALUATION

Columbiana Hi Tech, LLC, requested renewal of Certificate of Compliance No. 9284, for the Model No. ESP-30X package. Columbiana Hi Tech, LLC, did not request any changes to the package design or authorized contents.

CONCLUSION

The certificate has been renewed for a five year term that expires on March 31, 2010. This change does not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9284, Revision No. 4 on 20 April 2005.